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Chang-Hyun Lee

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EXAMINER

KIM, DAVID S

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/763,985	Applicant(s) LEE ET AL.	
	Examiner DAVID S. KIM	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6,7,11,13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6,7,11,13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Applicant's response to the rejection of **claims 6, 7, 9, 11, 13, and 14** under 35 U.S.C. 112, first paragraph (written description), in the previous Office Action (mailed on 31 December 2007) is noted and appreciated. Applicant responded by amending independent claim 6. Applicant's amendment overcomes the previous rejection, which is presently withdrawn. However, Applicant's amendment introduces new issues under 35 U.S.C. 112, first paragraph, to independent claim 6. See below for further details.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 6, 7, 11, 13, and 14** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular, notice the following limitations in independent claim 6:

said switching unit comprising:

a first memory for storing the MPTS data having **assigned storage areas** defined by an **address associated with a corresponding subscriber** in the first memory said address being **dependent upon the MPTS data**; and

means for outputting the stored MPTS data to a corresponding one of the plurality of subscribers by said subscriber accessing **said address** in said secondary memory based upon predetermined requirements of each subscriber.

Notice the supporting portion of the specification (p. 10, l. 14 – p. 11, l. 10) and Fig. 7:

In particular, a plurality of MPTSs data output from the HDLC packet processing section 53 are assigned and stored according to storage areas based on the MPTS data information. The stored MPTS

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information is transmitted to each of the subscribers 300-1 to 300-n through each of the subscriber-based memories 72-1 to 72-n.

According to one embodiment of the present invention, each of the subscriber-based memories 72-1 to 72-n has a storage capacity capable of storing two image channels.

An area is assigned according to MPTS data inputted to a main memory 71. In order to output a channel required by each of the subscribers 300-1 to 300-n, each of the subscriber-based memories 72-1 to 72-n accesses an address. MPTS data in a channel, required by a subscriber, are assigned to an address. Upon accessing the particular address the stored MPTS data is output.

In this embodiment, the main memory 71 and each of subscriber-based memories 72-1 to 72-n output or discard first-inputted data in a first-in first-out (FIFO) method when data of more than a predetermined amount are filled.

When the above memory based switching operation is performed, the switching apparatus processes the MPTS data by software through area assignation in memory. This occurs even if inputted MPTS data or the number of subscribers, which is an object of an output, changes. Thus, significant improvement in expansibility is achieved, in comparison to the conventional switching apparatus that is constructed in hardware.

Regarding the written description requirement, the “switching unit” of the claim 6 is *more specific* than the “switching unit” of the original disclosure. Accordingly, the added level of detail in claim 6 constitutes **new matter**. In particular, the “switching unit” of the claim 6 provides this new matter through the added level of detail regarding the limitation of “assigned storage areas defined by an address **associated with a corresponding subscriber** in the first memory” and the limitation of “said subscriber accessing **said address** in said secondary memory”. That is, the language of claim 6 expressly links together these “**assigned storage areas**”, this “**address**”, and the “**corresponding subscriber** in the first memory”. However, the original disclosure is not so specific.

For example, although the original disclosure teaches an “assigned storage area” (i.e., “area is assigned according to MPTS data inputted to a main memory 71” on p. 10, l. 20), it does not teach that this “assigned storage area” **is defined by** the “said address in said secondary memory”, **as claimed**. Rather, it more broadly teaches two instances of “assignment”: (1) “An area is assigned according to MPTS data inputted to a main memory 71” (p. 10, l. 20) and (2) “MPTS data in a channel, required by a subscriber, are assigned to an address” (p. 10, l. 22 – p. 11, l. 1). According to (1) and (2), there is an “assigned storage area” and there is said “address in said secondary memory”. The original disclosure is silent about whether or not this “assigned storage area” **is defined by** said “address in said secondary memory”, **as claimed**. Accordingly, claim 6 introduces limitations that speak **new matter** into the silence

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of the original disclosure. As a counterexample, Applicant's specification also reads on the scenario where the **two** instances of assignment, (1) and (2), are not equivalent, i.e., (1) and (2) are separate and distinct assignments, e.g., (1) MPTS data is assigned to an area *and then* (2) this MPTS data is assigned to an address, wherein said "area" of (1) and said "address" of (2) do not refer to the same location in memory.

As another example, although the original disclosure teaches an "assigned storage area" (i.e., "area is assigned according to MPTS data inputted to a main memory 71" on p. 10, l. 20), it does not teach that this "assigned storage area" **is associated with** "a corresponding subscriber". Rather, it more broadly teaches two instances of "assignment": (1) "An area is assigned according to MPTS data inputted to a main memory 71" (p. 10, l. 20) and (2) "MPTS data in a channel, required by a subscriber, are assigned to an address" (p. 10, l. 22 – p. 11, l. 1). According to (1) and (2), there is an "assigned storage area" and there is said "address in said secondary memory". The original disclosure is silent about whether or not this "assigned storage area" **is associated with** "a corresponding subscriber", **as claimed**. Accordingly, claim 6 introduces limitations that speak **new matter** into the silence of the original disclosure. As a counterexample, Applicant's specification also reads on the scenario where the **two** instances of assignment, (1) and (2), are not equivalent, i.e., (1) and (2) are separate and distinct assignments, e.g., (1) MPTS data is assigned to an area *and then* (2) this MPTS data is assigned to an address, wherein said "area" of (1) and said "address" of (2) do not refer to the same location in memory. Even if said "address" of (2) is associated with "a corresponding subscriber", the original disclosure does not expressly associate said "area" of (1) with any "corresponding subscriber" associated with said "address" of (2).

Accordingly, these examples show how the "switching unit" of the claim 6 is *more specific* than the "switching unit" of the original disclosure. Accordingly, the added level of detail in claim 6 constitutes **new matter**. As a remedy, Examiner respectfully suggests Applicant to amend the claim language to more closely match the "switching unit" of the original disclosure.

Claim Objections

4. **Claims 6 and 14** are objected to because of the following informalities:

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In claim 6,

“a first memory for storing the MPTS data having assigned storage areas defined by an address associated with a corresponding subscriber in the first memory said address being dependent upon the MPTS data”

is used where

“a first memory for storing the MPTS data having assigned storage areas, each defined by an address associated with a corresponding subscriber ~~in the first memory~~, said address being dependent upon the MPTS data”

may be intended.

Otherwise, multiple “assigned storage areas” are defined by **one** address associated with **one** corresponding subscriber. However, Applicant’s specification is silent about multiple “assigned storage areas” being defined by **one** address or that multiple “assigned storage areas” are associated with **one** corresponding subscriber. However, it would make sense that multiple “assigned storage areas” would **each** be defined by an address.

Also, the placement of the phrase “in the first memory” is confusing. Clearly, there would not be “a corresponding subscriber *in the first memory*” since Fig. 7 shows subscribers outside any of the memory elements. Are the “assigned storage areas” located “in the first memory”? Are the “addresses associated with a corresponding subscriber” located “in the first memory”? Such questions raise questions of clarity of the claim. Accordingly, simple removal of the phrase “in the first memory” would be a simple remedy.

Also, in claim 6,

“means for outputting the stored MPTS data to a corresponding one of the plurality of subscribers by said subscriber accessing said address in said secondary memory based upon predetermined requirements of each subscriber”

is used where

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“means for outputting the stored MPTS data to a corresponding one of the plurality of subscribers by said subscriber accessing said address ~~in said secondary memory~~ based upon predetermined requirements of each subscriber”

may be intended.

Otherwise, antecedent basis is lacking. That is, there is no previous introduction of any “secondary memory” in this claim. Accordingly, simple removal of the phrase “in said secondary memory” would be a simple remedy.

In claim 14, “the plurality of secondary memory units” is lacking antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. **Claims 6, 7, and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang (U.S. Patent No. 5,835,602) in view of Newton (*Newton's Telecom Dictionary*, 8th ed.), the admitted prior art (hereinafter the “APA”), Frenzel (“Programmable Frammer Chip Improves OC-48 Efficiency”), and Amaral et al. (U.S. Patent No. 7,031,306 B2, hereinafter “Amaral”), with reference to Weik (*Fiber Optics Standard Dictionary*, 3rd ed.) and Newton.

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Regarding claim 6, Lang discloses:

A transmission apparatus for use in an optical subscriber network, having a plurality of optical network units (ONU), the ONU comprising:

a synchronous transport module (STM) unit (e.g., 13 and 15 together) for receiving and converting a received optical signal into an electrical signal (SONET frame termination 13 in Fig. 1 is a synchronous transport module that receives and converts a received optical signal (SONET) into an electrical signal) and outputting an HDLC packet (output from 15 carries HDLC packets that are terminated in 17);

a high-level data link control (HDLC) packet processing unit (17 in Fig. 1) disposed inside the ONU, for receiving signals from the STM unit.

Lang does not expressly disclose:

the HDLC packet processing unit further including:

a **multi-program transmission stream (MPTS) data receiver** for receiving the signal from the STM unit;

an **MPTS data extractor** coupled to the **MPTS receiver**, for receiving the HDLC packet from the **MPTS** data receiver, removing overhead from the HDLC packet and extracting **MPTS** data;

a **buffer** coupled to the **MPTS** data extractor, for buffering the extracted **MPTS** data;

a **controller** for controlling the **MPTS** receiver, the **MPTS** data extractor and the buffer;

and

a **switching unit** for switching the **MPTS** data from the HDLC packet processing unit to a plurality of subscribers, said switching unit comprising:

a **first memory** for storing the MPTS data having assigned storage areas defined by an address associated with a corresponding subscriber in the first memory said address being dependent upon the MPTS data and

means for outputting the stored ***MPTS*** data to a corresponding one of the plurality of subscribers by said subscriber ***accessing*** said address in said ***secondary memory*** based upon predetermined requirements of each subscriber (emphasis Examiner's).

Regarding the data receiver and the data extractor, notice that such data reception and data extraction is implied by HDLC packet terminator 17 in Fig. 1. That is, clearly, HDLC packet terminator 17 receives a signal from the STM unit (signal output from 15), for outputting an HDLC packet (col. 2, l. 66-67, delineation of packets means that the packet boundaries are discerned so that later components know when a packet begins and ends) either somewhere within 17 or output from 17. Also, extraction of data is implied by 17 since the data in the HDLC packets have to be extracted for usage by any end user after 17. Preparation for such usage by an end user may involve the common component of a packet disassembler, as described by Newton ("PAD" on p. 757). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to provide a component that extracts the data from the HDLC packets. One of ordinary skill in the art would have been motivated to do this so that the data is in a form/stream that can be handled by the end user (Newton, "PAD" on p. 757), i.e., not in an HDLC packet format.

Regarding the MPTS data, the APA shows that such MPTS data is known and common in the art (APA, MPTS in Fig. 1). Usage of such data simply provides an obvious variation of Lang.

Regarding the buffer, the use of a buffer after a data extractor is an extremely well known and general technique in the art. Frenzel provides an example of this general technique (Channel buffer after the RX HDLC engine in Fig. 2). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ this technique in the apparatus of Lang. One of ordinary skill in the art would have been motivated to do this since a buffer is generally known to provide the ability to properly coordinate the timing of the transfer of data between various devices (Weik, "buffer", definition 3 on p. 83). Also, another motivation is to provide structural details for implementing the apparatus of Lang. That is, Lang is silent about the structural details of components that receive the data that is extracted by

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HDLC packet terminator 17 in Fig. 1. The teachings of Frenzel would speak into this silence with the example of its own structural details.

Regarding the controller, employing a controller for multiple components in an apparatus is an extremely well known practice. Frenzel shows the general technique of providing a control section for multiple components (bus from the CPU Interface in Fig. 2). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ a control section for controlling the components of the apparatus of Lang. One of ordinary skill in the art would have been motivated to do this for the common purpose of properly coordinating operation of all of the components, providing conventional functions such as synchronization of components, fault detection, fault recovery, configuration, and initialization.

Regarding the switching unit, such switching unit teachings are known in the art. Amaral provides an example (

a **first memory** for storing the MPTS data having assigned storage areas ("buffers and memories" in col. 4, l. 6-7) defined by an address ("buffers and memories" are conventionally "defined by an address") associated with a corresponding subscriber (these "buffers and memories" are associated with the "interface 28, 30 designated by an end user" in col. 4, l. 8-9) in the first memory said address being dependent upon the MPTS data (these "buffers and memories" of the "switch fabric 32" in col. 3, l. 63 have "memory buffer" dedicated according to, or "dependent upon", data of specific sources in col. 3, l. 60-62) and

means for outputting the stored **MPTS** data (e.g., interfaces 28 and 30 in Fig. 2) to a corresponding one of the plurality of subscribers (end user(s) of col. 4, l. 9; users of interfaces 28 and 30 in Fig. 2) by said subscriber **accessing** said address in said **secondary memory** (e.g., each of the end users accesses the data through its own interface 28, 30 in Fig. 2; e.g., access through "egress buffers" of col. 8, l. 38-48; e.g., access through FIFO of an ASI transmitter in a DVB-ASI interface in col. 9, l. 10-13) based upon predetermined requirements of each subscriber (e.g., "information entered by a user" in col. 8, l. 60).

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). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to provide a switching unit, as exemplified by the switching unit teachings of Amaral, for switching the MPTS data from the HDLC packet processing unit to a plurality of subscribers. One of ordinary skill in the art would have been motivated to do this since such switching unit teachings are generally known to provide control over how to appropriately direct various communications to end users/customers/subscribers (Newton, “switching” and “switching arrangement” on p. 991, “switching equipment” and “switching point” on p. 992). Otherwise, the end users/customers/subscribers might not receive their respective communication services properly.

Regarding claim 7, Lang in view of the references applied above to claim 6 (hereinafter the “RAA6”) does not expressly disclose:

The transmission apparatus as claimed in claim 6, wherein the buffer continuously outputs the MPTS data.

However, the APA discloses that MPTS data is a transmission stream (Applicant’s specification, p. 2, l. 22 – p. 3, l. 1). Such streams are often continuous, so an obvious variation of the apparatus of Lang in view of the RAA6 could reasonably include a continuous output from the buffer.

Regarding claim 14, Lang in view of the RAA6 does not expressly disclose:

The transmission apparatus as claimed in claim 6, wherein the plurality of secondary memory units is configured for outputting or discarding first-inputted MPTS data according to a first-in first-out (FIFO) method.

However, FIFO is an extremely well known method for processing the contents of memory, as shown by Weik (“first in, first out” on p. 363). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ a FIFO method for the secondary memory units of Lang in view of the RAA6. One of ordinary skill in the art would have been motivated to do this to maintain the same order of data in which they arrived (Weik, “first in, first out” on p. 363). That is, data is sent in a particular order. Maintenance of that same order at the receiving end of a transmission link generally results in simple processing of that data. Otherwise, additional resources may be required for reordering the data according to a different method.

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8. **Claims 11 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang in view of the RAA6 as applied to the claims above, and further in view of Shohet ("HDLC framing of Ethernet packet").

Regarding claim 11, Lang in view of the RAA6 does not expressly disclose:

The transmission apparatus as claimed in claim 6, wherein the HDLC protocol provides a HDLC packet having **a size of 64 Bytes to 1024 Bytes**.

Regarding the size of 64 bytes to 1024 bytes, the payload of an HDLC packet is variable, so any suitable range of packet sizes would be an obvious variation, including 64 bytes to 1024 bytes. Shohet provides an example of a range of the same order of size (p. 12, 64 bytes to 1522 bytes, calculated from 6 bytes being 9.375% for shortest packet to 0.3942% for longest packet).

Regarding claim 13, Lang in view of the RAA6 and Shohet does not expressly disclose:

The transmission apparatus as claimed claim 6, wherein the transmission apparatus provides for a payload transmission rate of 6:512.

However, notice that Shohet teaches an overhead size of 6 bytes and a packet size range of 64 bytes to 1522 bytes (p. 12, 64 bytes to 1522 bytes, calculated from 6 bytes being 9.375% for shortest packet to 0.3942% for longest packet). The range of these teachings includes the payload transmission rate of 6:512.

Response to Arguments

9. Applicant's arguments with respect to Opalka et al. (U.S. Patent No. 6,259,699 B1) have been considered but are moot in view of the new ground(s) of rejection. In particular, notice the new ground of rejection under 35 U.S.C. 112, first paragraph (written description), and the new ground of rejection under 35 U.S.C. 103, particularly in view of newly discovered Amaral.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID S. KIM whose telephone number is (571)272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. S. K./
Examiner, Art Unit 2613

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613

